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International Standard



3364

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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

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## Indexable hardmetal (carbide) inserts with rounded corners, with cylindrical fixing hole — Dimensions

*Plaquettes amovibles en métaux-durs (carbures métalliques) avec arrondi de pointe et trou de fixation cylindrique — Dimensions*

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[ISO 3364:1985](https://standards.iteh.ai/catalog/standards/sist/6bacebc1-8149-4db9-9351-8b45cc50f50a/iso-3364-1985)

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Price based on 9 pages

# Indexable hardmetal (carbide) inserts with rounded corners, with cylindrical fixing hole — Dimensions

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### 1 Scope and field of application

This International Standard specifies the dimensions of indexable hardmetal (carbide) inserts with rounded corners, with cylindrical fixing hole and with 0° normal clearance. These inserts are primarily intended to be mounted by top and hole, or hole alone, clamping on turning and boring tools.

- TN: triangular inserts, with 0° normal clearance;
- SN: square inserts, with 0° normal clearance;
- CN: rhombic inserts, with 0° normal clearance and 80° included angle;
- DN: rhombic inserts, with 0° normal clearance and 55° included angle.

### 2 References

ISO 513, *Application of carbides for machining by chip removal — Designation of the main groups of chip removal and groups of application.*

ISO 883, *Indexable hardmetal (carbide) inserts with rounded corners, without fixing hole — Dimensions.*

ISO 1832, *Indexable inserts for cutting tools — Designation.*

ISO 3365, *Indexable hardmetal (carbide) inserts with wiper edges, without fixing hole — Dimensions.*

ISO 6987/1, *Indexable hardmetal (carbide) inserts with rounded corners, with partly cylindrical fixing hole — Part 1: Dimensions of inserts with 7 degrees normal clearance.*

### 3 Types of inserts

The types of indexable hardmetal (carbide) inserts specified in this International Standard are the following:

Inserts dealt with in this International Standard are standardized with chip breakers on both faces, with chip breakers on one face only and with no chip breakers at all.

At present, neither the shape nor the dimensions of chip breakers are standardized. Thus, if necessary, special features have to be explained by means of a diagram or additional specifications.

Table 7 gives the range of sizes for these inserts.

### 4 Interchangeability

#### 4.1 Tolerances

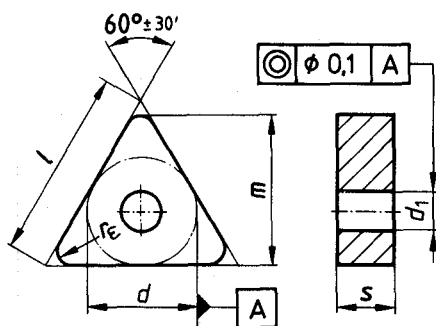
Indexable hardmetal (carbide) inserts specified in this International Standard are provided in tolerance class M in accordance with ISO 1832.

The values of the tolerances in accordance with ISO 1832 are given in annex A.

Other tolerances are given, either in table 1 for hole dimensions, or in tables 2 to 5 for insert dimensions.

7.1 Triangular inserts

TNMA  
without chip breakers



TNMM  
with chip breakers  
on one face only

TNMG  
with chip breakers  
on both faces



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Table 2 – Dimensions of triangular inserts

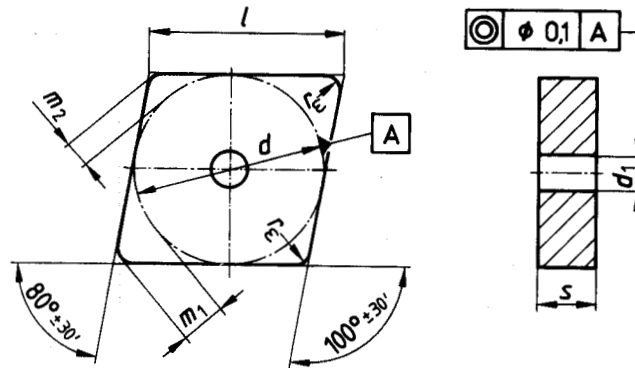
Values in millimetres

Insert			L =	d 1)	s 1)	m 1)	r <sub>ε</sub> ± 0,10	d <sub>1</sub> ± 0,08
TNMA160404	—	TNMG160404	16,5	9,525	4,76	13,891	0,4	3,81
TNMA160408	TNMM160408	TNMG160408				13,494	0,8	
TNMA160412	TNMM160412	TNMG160412				13,097	1,2	
TNMA220408	TNMM220408	TNMG220408	22,0	12,70	4,76	18,256	0,8	5,16
TNMA220412	TNMM220412	TNMG220412				17,859	1,2	
TNMA220416	TNMM220416	TNMG220416				17,463	1,6	
—	TNMM270612	—	27,5	15,875	6,35	22,622	1,2	6,35
—	TNMM270616	—				22,225	1,6	

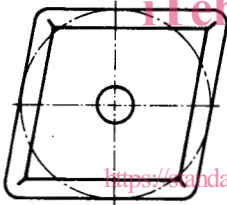
1) Tolerances in accordance with ISO 1832. See annex A.

7.3 Rhombic inserts with 80° included angle

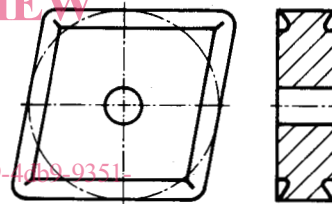
CNMA  
without chip breakers



CNMM  
with chip breakers  
on one face only



CNMG  
with chip breakers  
on both faces



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Table 4 — Dimensions of rhombic inserts with 80° included angle

Values in millimetres

Insert			$l$ ≈	$d$ 1)	$s$ 1)	$m_1$ 1)	$m_2$ 1)	$r_\epsilon$ ± 0,10	$d_1$ ± 0,08
—	—	CNMG120404	12,9	12,70	4,76	3,308	1,818	0,4	5,16
CNMA120408	CNMM120408	CNMG120408				3,088	1,697	0,8	
CNMA120412	CNMM120412	CNMG120412				2,867	1,576	1,2	
—	CNMM160608	CNMG160608	16,1	15,875	6,35	3,970	2,182	0,8	6,35
—	CNMM160612	CNMG160612				3,749	2,061	1,2	
—	—	CNMG190608	19,3	19,05	6,35	4,852	2,667	0,8	7,94
CNMA190612	CNMM190612	CNMG190612				4,632	2,545	1,2	
CNMA190616	CNMM190616	CNMG190616				4,411	2,424	1,6	

1) Tolerances in accordance with ISO 1832. See annex A.

## Annex A

Tolerances for  $d$ ,  $m$ ,  $m_1$ ,  $m_2$  and  $s$ 

(Extract from ISO 1832.)

Table 6 — Tolerances for  $d$ ,  $m$ ,  $m_1$ ,  $m_2$  and  $s$ <sup>1)</sup>

Values in millimetres

Designation	Insert		Tolerances class M for	
		$d$	$d$	$m$ , $m_1$ and $m_2$
TNM. 16.. SNM. 09..		9,525	$\pm 0,05$	$\pm 0,08$
TNM. 22.. SNM. 12.. CNM. 12..		12,70	$\pm 0,08$	$\pm 0,13$
DNM. 15..				$\pm 0,15$
TNM. 27.. SNM. 15.. CNM. 16..		15,875	$\pm 0,10$	$\pm 0,15$
SNM. 19.. CNM. 19..		19,05	$\pm 0,10$	$\pm 0,15$
SNM. 25..		25,40	$\pm 0,13$	$\pm 0,18$

1) Tolerance for  $s$ :  $\pm 0,13$ 

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


Annex C

Inserts with rounded corners with cylindrical fixing hole, with shapes covered by this International Standard

Table 7 — Range of sizes

Values in millimetres

d	Without chip breakers (A)						With chip breakers on one face only (M)						With chip breakers on both faces (G)					
	Designation	Corner radius $r_\epsilon$					Designation	Corner radius $r_\epsilon$					Designation	Corner radius $r_\epsilon$				
		$\frac{d}{2}$	0,4	0,8	1,2	1,6		2,4	0,4	0,8	1,2	1,6		2,4	$\frac{d}{2}$	0,4	0,8	1,2
6,35	TNMA 1103						TNMM 1103						TNMG 1103					
9,525	TNMA 1603						TNMM 1603						TNMG 1603					
	TNMA 1604		+	+	+		TNMM 1604		+	+			TNMG 1604		+	+	+	
12,7	TNMA 2204			+	+	+	TNMM 2204		+	+	+		TNMG 2204			+	+	+
15,875	TNMA 2706						TNMM 2706				+	+	TNMG 2706					
19,05	TNMA 3309						TNMM 3309						TNMG 3309					
9,525	SNMA 0903						SNMM 0903		+	+			SNMG 0903		+	+		
12,7	SNMA 1203						SNMM 1203						SNMG 1203					
	SNMA 1204			+	+		SNMM 1204		+	+			SNMG 1204		+	+	+	
15,875	SNMA 1504						SNMM 1504						SNMG 1504					
	SNMA 1506						SNMM 1506		+	+			SNMG 1506			+	+	
19,05	SNMA 1906				+	+	SNMM 1906				+	+	SNMG 1906				+	+
25,4	SNMA 2507						SNMM 2507					+	SNMG 2507					+
	SNMA 2509						SNMM 2509						SNMG 2509					
12,7	CNMA 1204			+	+		CNMM 1204		+	+			CNMG 1204		+	+	+	
15,875	CNMA 1606						CNMM 1606		+	+			CNMG 1606			+	+	
19,05	CNMA 1906				+	+	CNMM 1906			+	+		CNMG 1906			+	+	+
25,4	CNMA 2509						CNMM 2509						CNMG 2509					
12,7	DNMA 1504						DNMM 1504						DNMG 1504					
	DNMA 1506		+	+	+	+	DNMM 1506		+	+	+		DNMG 1506		+	+	+	+
15,875	DNMA 1906						DNMM 1906						DNMG 1906					

-  First preference in this International Standard (see tables 2 to 5).
-  Non-shaded squares: second preference; not covered by this International Standard.
-  Shaded squares: inserts not recommended.